

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 21799-76808	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US05/03531	International filing date (<i>day/month/year</i>) 28 January 2005 (28.01.2005)	(Earliest) Priority Date (<i>day/month/year</i>) 29 January 2004 (29.01.2004)
Applicant LINDLEY, JOSEPH		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).



With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.



Certain claims were found unsearchable (See Box No. II)

3.



Unity of invention is lacking (See Box No. III)

4.

With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5.

With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6.

With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.



none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/03531

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E01C 19/22, 19/40

US CL : 404/118, 114

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 404/118, 114

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

East, PGPubs, Derwent

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3,302,233 A (Sebastiani) 7 February 1967, Figs. 1-5, Cols. 1-3.	3-5, 10, 18
Y	US 3,082,460 A (HAIVALA) 26 March 1963, Figs. 1, 2, 4, 5; Cols. 1-2.	3-5, 10, 18
X	US 4,702,641 A (NASER et al.) 27 October 1987, Figs. 1, 2, 4, 7; Cols. 3-6	8
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Y		1-5, 13, 15, 16
Y	US 4,828,427 A (NISENBAUM) 9 May 1989, Figs. 1, 3, 4, 7; Cols. 3-6.	1-4, 8-10, 13-16, 21
Y	US 5,244,305 (LINDLEY) A14 September 1993, Figs. 1-4; cols. 1-2	1, 2, 8, 9, 13, 15-17, 19, 20, 22
Y	US 5,324,085 A (HINTZ, JR.) 28 June 1994, Figs. 1-4; Cols. 1-2.	2, 9, 13-15, 17, 18, 21, 22
Y	US 5,540,519 A (WEBER) 30 July 1996, Figs. 1-7; Cols. 2-4.	1-5, 8-23
Y	US 5,725,279 A (PIKE, JR.) 17 March 1998, Figs. 1-5; Cols. 2-5	1-4, 8, 16



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

26 May 2005 (26.05.2005)

Date of mailing of the international search report

02 AUG 2005

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.
 PCT/US05/03531

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,857,803 A (DAVIS et al.) 12 January 1999, Figs. 1-3, Cols. 1-3.	1, 2, 8, 16, 23
Y	US 5,984,571 A (OWENS) 16 November 1999, Figs. 1-7; Cols. 1-5.	1, 2, 8, 16
Y	US 5,909,981 A (NEUBER, JR.) 8 June 1999, Figs. 5-7; Cols. 4-6.	1, 8, 16, 19-20, 23
Y	US 6,200,065 B1 (EITZEN) 13 March 2001, Figs. 1, 2; Cols. 1-3.	1, 8, 16, 23
Y	US 5,980,154 A (RECORD) 9 November 1999, Figs. 1-5, Cols. 1-5	1, 2, 8, 9, 13-17, 21
Y	US 6,322,286 B1 (RIJKERS) 27 November 2001, Figs. 2, 3; Cols. 1-4.	1, 2, 9, 15, 16, 22, 23